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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,158	10/30/2003	Ralf Zuber	Umicore 0120-US	1631
80336	7590	04/12/2012		
Levin Santalone LLP 2 East Avenue Suite 201 Larchmont, NY 10538			EXAMINER WILLS, MONIQUE M	
			ART UNIT	PAPER NUMBER
			1728	
			MAIL DATE	DELIVERY MODE
			04/12/2012	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/699,158	<b>Applicant(s)</b> ZUBER ET AL.	
	<b>Examiner</b> MONIQUE WILLS	<b>Art Unit</b> 1728	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 5) ☒ Claim(s) 1-3,5-7,10 and 12-17 is/are pending in the application.
- 5a) Of the above claim(s) 12-15 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-3,5-7,10,16 and 17 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Response to Amendment***

This Office Action is responsive to the Amendment filed December 16, 2011. The rejection of claims 1-3, 5-8, 9-11 and 16 & 17 under 35 U.S.C. 103(a) as being unpatentable over Nanaumi et al. U.S. Pub. 2003/0049518 in view of Brunk et al. U.S. Pat. 7,267,902 is overcome. However, claims 1-3, 5-8, 9-11 and 16 & 17 are newly rejected as follows:

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

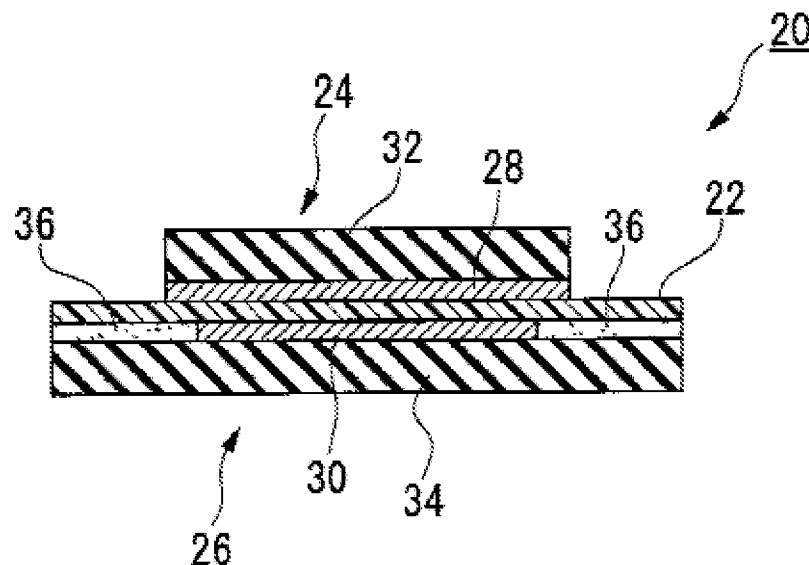
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-8, 9-11 and 16 & 17 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Nanaumi ET al. U.S. Pub. 2003/0049518 in view of Lertola U.S. Pub. 2005/0255372.

Nanaumi teaches a membrane electrode unit for electrochemical equipment, containing an ionically conductive membrane with a front and back side, a first catalyst layer and a first gas distributor substrate on the front side and a second catalyst layer

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and a second gas distributor substrate on the back side, in which the first gas distributor substrate has lesser surface dimensions than the ionically conductive membrane and the second gas distributor substrate has essentially the same surface dimensions as the ionically conductive membrane. See paragraph 6.



The catalyst layer on the front side and the catalyst layer on the back side of the ionically conductive membrane have different size dimensions. See paragraph 16. The catalyst layers on the front side and on the back side contain catalyst containing noble metals and optionally ionically conductive materials. See paragraph 48. The gas distributor substrate comprises porous electrically conductive carbon cloth. See paragraph 48. The edge of the first gas distributor substrate and the portion of the front side of the ionically conductive membrane not supported by the first gas distributor substrate are surrounded by a sealing material. See paragraph 24 and Figure 7. The

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sealing material is integrally combined with another peripheral plastic frame. See paragraph 24 and Figure 7.

However, the reference does not disclose: edges of the first and second substrate and a portion of the front side of the ionically conductive membrane not supported by the first gas distributor substrate are surrounded by sealing material, wherein the sealing material impregnates the edge regions of the first and second gas distributor substrate to a depth of at least 1 mm (**claim 1**); that the catalyst have the same size on both sides of the membrane (**claim 3**); that the membrane has a thickness of 10 to 200 microns (**claim 6**) or that the sealing material impregnates an edge region to a depth of a least 1mm; a polyethylene sealant (**claim 10**).

Lertola teaches that it is conventional to impregnate edges of the gas diffusions layers using a polyethylene sealant. See Example 8. More specifically, the membrane electrode assembly as a first gas diffusion backing having sealing edges' a polymer membrane' and a second gas diffusion backing having sealing edges. See the Abstract.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the seal of Lertola, to impregnate the edges of the gas diffusion layers of Nanaumi, in order to effectively prevent an electrolyte membrane from being broken, can make an assembling step for the fuel cell easy, and achieve an excellent sealing property.

With respect to catalyst size, it would have been obvious to one of ordinary skill in the art at the time the instant invention was employ catalyst of the same size on the

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same side of the membrane, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CC)A 1955). The skilled artisan recognizes that catalyst size directly effects electrochemical activities.

With respect to the thickness of the membrane, it would have been obvious to one of ordinary skill in the art at the time the instant invention was employ a membrane having a thickness of 10 to 200 microns, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CC)A 1955). The skilled artisan recognizes that that thickness of the membrane directly effects ion transport.

With respect to the sealing material impregnating the edge region of the substrate to a depth of 1mm, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to employ the instant sealing depth in order to increase structural integrity of the seal.

### ***Response to Arguments***

Applicant submitted a certified English translation of the foreign priority German application 103 31 836.4, filed July 14, 2003. The perfected priority document antedates the Brunk reference which claims priority to a provisional application filed August 29, 2003. Therefore, Brunk is not proper prior art against the subject application. The previously pending rejections are withdrawn.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Jennifer Michener, may be reached at 571-272-1424. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Monique M Wills/

Examiner, Art Unit 1728

/Jennifer K. Michener/

Supervisory Patent Examiner, Art Unit 1728